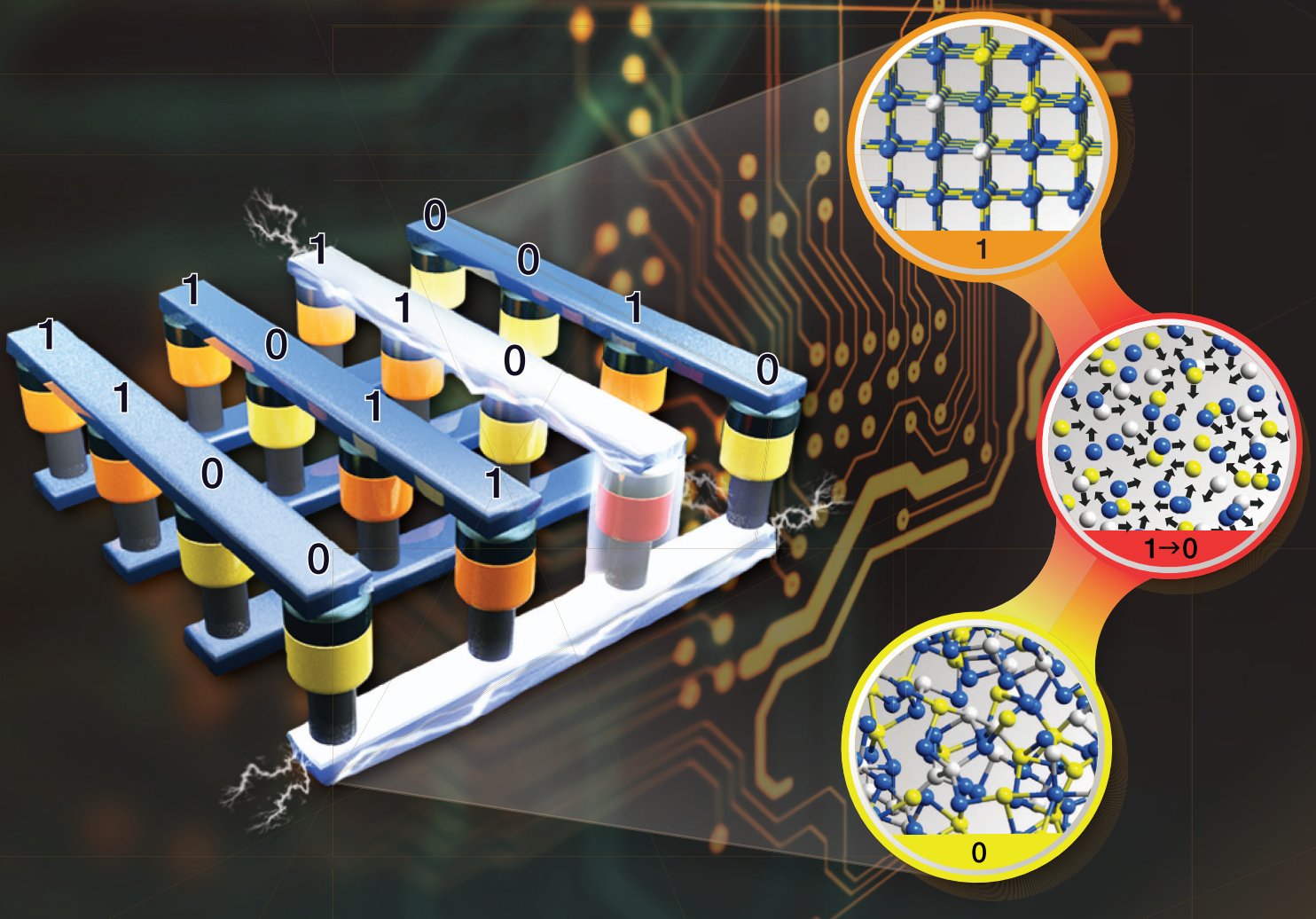


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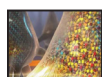
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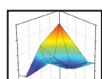
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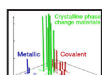
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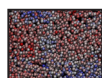
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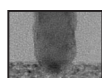
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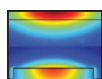
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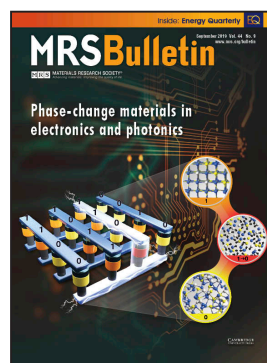
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ON THE COVER

Phase-change materials in electronics and photonics. Phase-change materials (PCMs) show great promise to enable future nonvolatile memory devices and neuro-inspired computing devices that can unify computing with storage in memory cells. The articles in this issue of *MRS Bulletin* highlight recent breakthroughs in the fundamental materials science, as well as electronic and photonic implementations of novel devices based on PCMs. The cover shows a typical crossbar memory array that utilizes the rapid and reversible phase transitions between crystalline (logic state "1," orange cells) and amorphous (logic state "0,"

yellow cells) PCMs to store and process data. For the "1 → 0" operation, an ordered crystalline state is first melted to a liquid state, and subsequent rapid quenching results in a disordered amorphous state. All memory cells are covered by a selector layer to improve the accuracy of memory programming through electrical pulses. Images courtesy of Yuxing Zhou, Xi'an Jiaotong University, China. See the technical theme that begins on page 686.



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The Society's interdisciplinary approach differs from that of single-discipline professional societies because it promotes information exchange across many scientific and technical fields touching materials development. MRS conducts three major international annual meetings and also sponsors numerous single-topic scientific meetings. The Society recognizes professional and technical excellence and fosters technical interaction through University Chapters. In the international arena, MRS implements bilateral projects with partner organizations to benefit the worldwide materials community. The Materials Research Society Foundation helps the Society advance its mission by supporting various projects and initiatives.

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